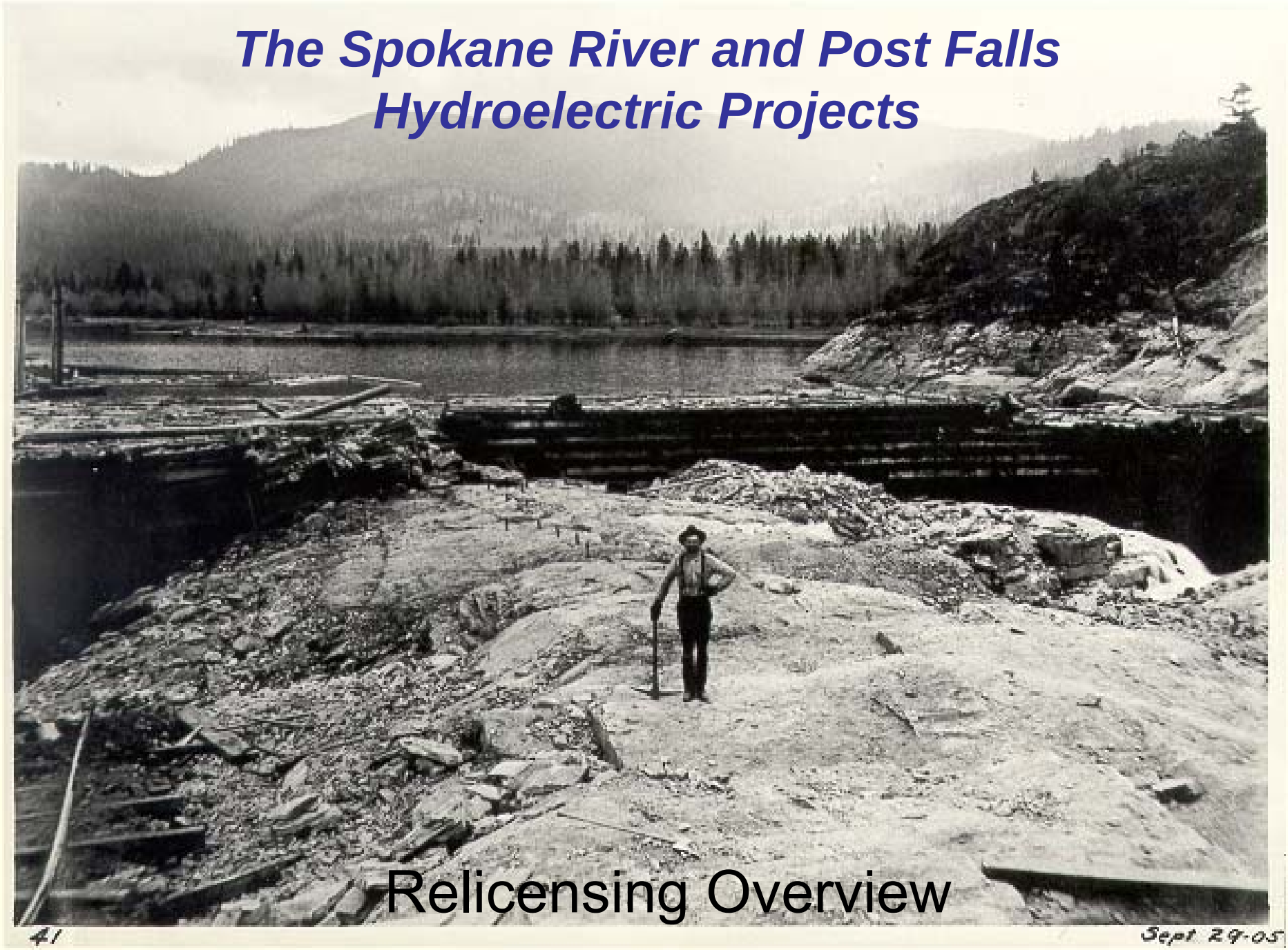
The Spokane River and Post Falls Hydroelectric Projects



Relicensing Overview

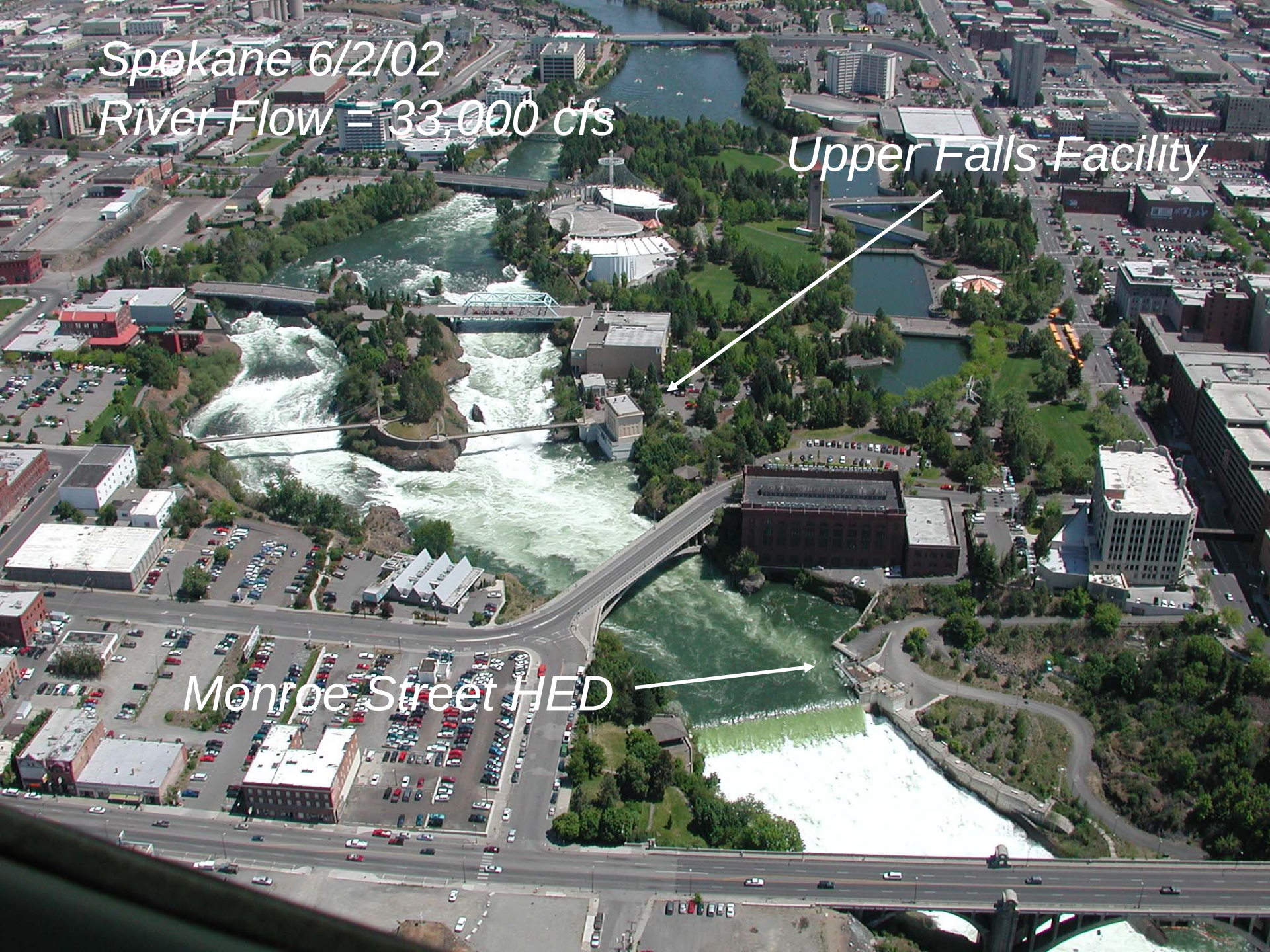
Avista Corp.'s Hydroelectric Projects


Post Falls HED

Limited Flood Control

Independence Point, May 19, 1997 Lake Elevation = 2136.14'

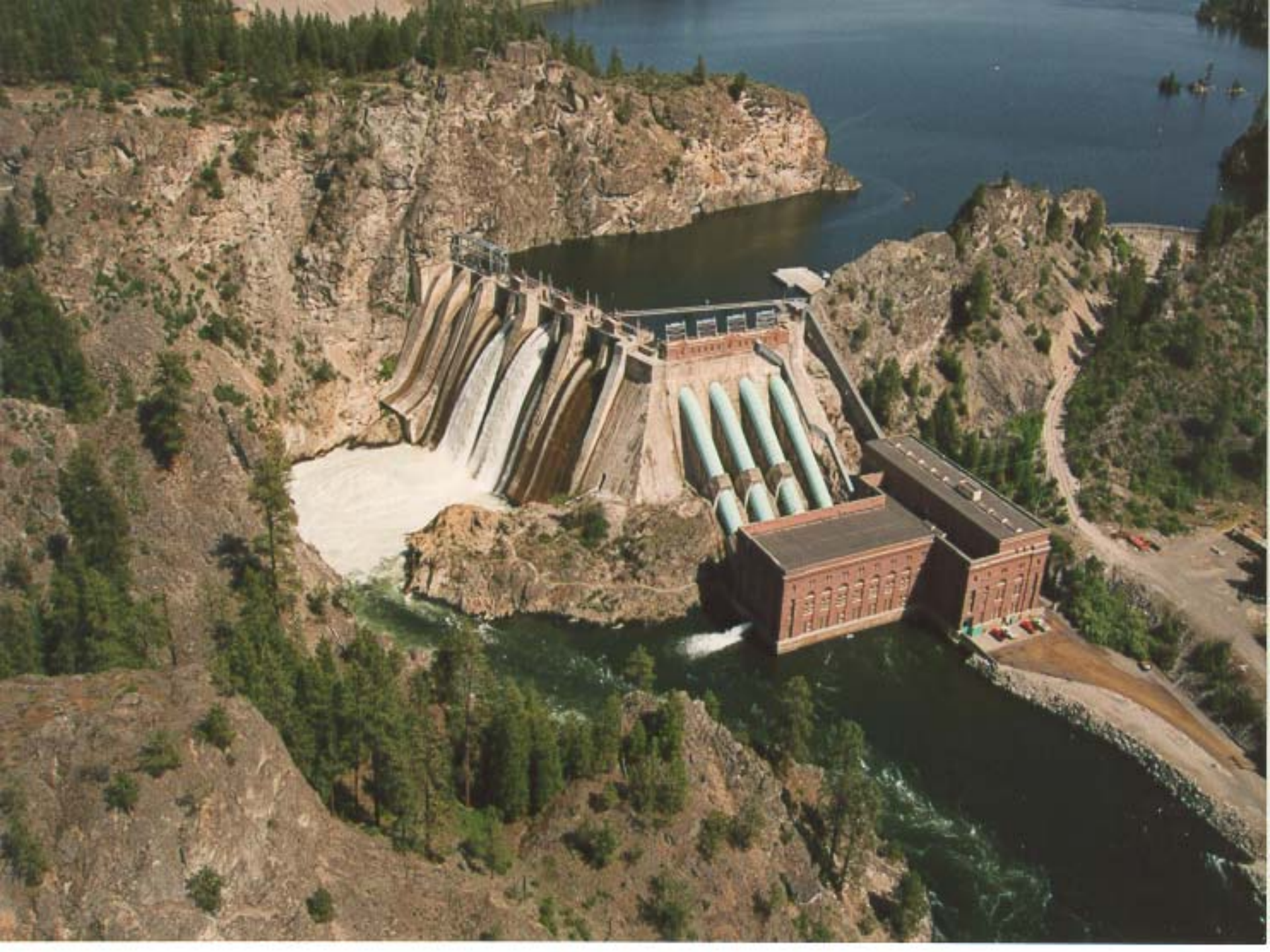

28 3:12PM


Spokane 6/2/02
River Flow = 33,000 cfs
Upper Falls Facility
Monroe Street HED

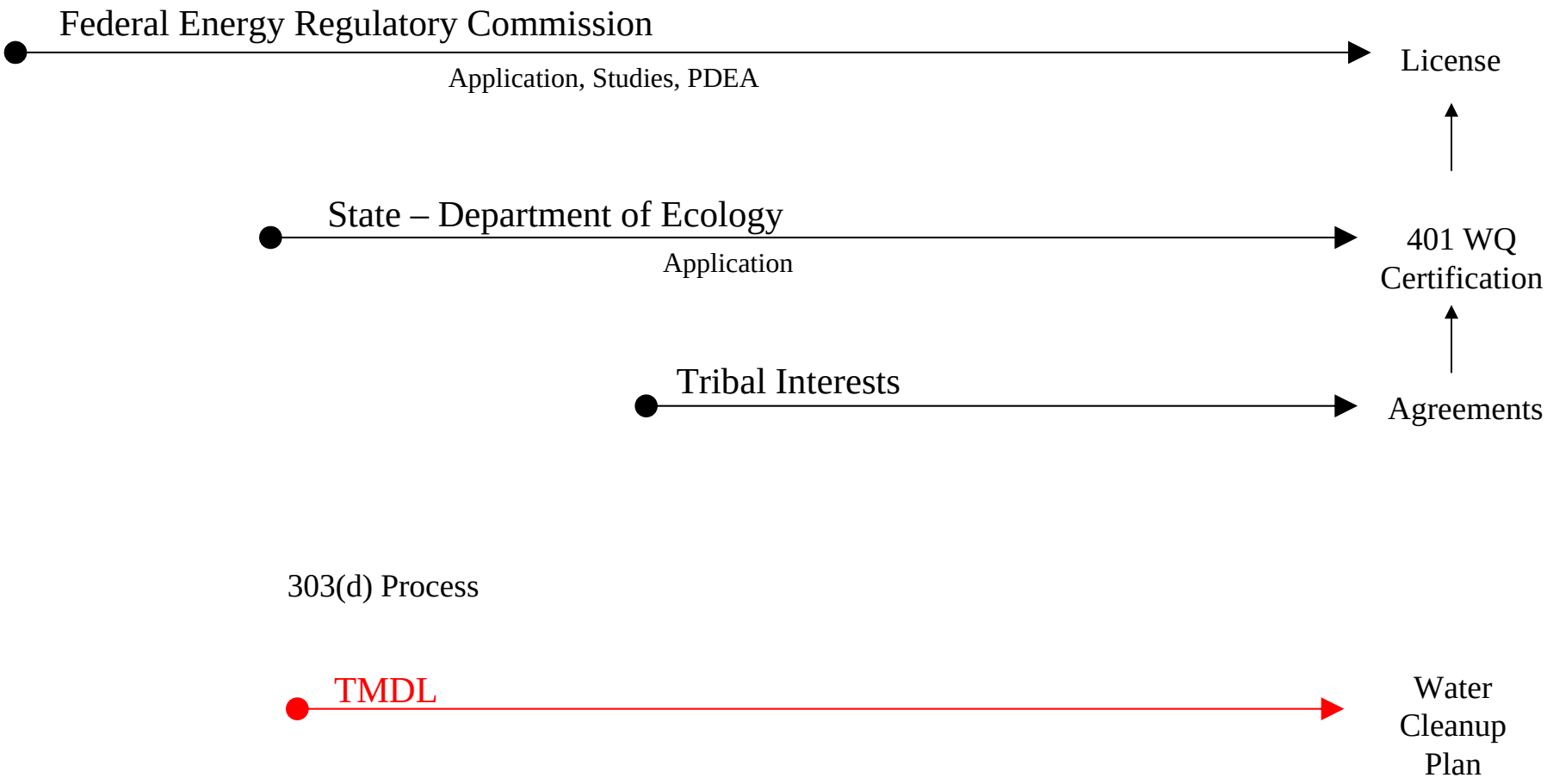

7 31 97


Confluence of Little Spokane
and Spokane River -- 1999


Lake Spokane at Tum Tum



Relicensing a Hydroelectric Development



Water Resources Work Group

Key Issues

- Total Dissolved Gas (TDG)
  - 110% standard
  - Post Falls and Long Lake exceed
- Temperature
  - River/Lake exceedences of ID and WA standards
  - Instream flow relationship with fish
  - Effects of Coeur d'Alene Lake/Post Falls HED
- CdA Lake DO, ph, nutrients and aquatic plants
  - Meeting the 6 mg/l DO standard in the summer months
  - Warm layer on the lake surface is above the standard during July and August
  - Modeling results
    - 2128 vs. 2120

Key Stakeholders

- Department of Environmental Quality
- Department of Ecology
- Idaho Fish and Game
- Washington Department of Fish and Wildlife
- Spokane Tribe
- Coeur d'Alene Tribe

Consultants and Studies

- Golder Associates
  - TDG Monitoring
  - Temperature monitoring
  - Modeling of Dissolved Oxygen, nutrients, pH, aquatic plants
  - Metals and sediment transport & deposition
- Northwest Hydraulic Consultants
  - Water Budget and Identification of Beneficial Uses

Recreation, Land Use and Aesthetics Work Group

Key Issues

- Coeur d'Alene Lake water level
- Spokane River whitewater paddling flows
- Aesthetic flows at Post Falls and Upper Falls
- Avista land management
- Reservoir/lake access
- Lake Spokane
  - Aquatic weeds
  - Day-use and overnight opportunities
  - Interpretation
  - State Park/Avista Property

Key Issues *(cont.)*

- Nine Mile
  - Portage
- Monroe Street and Upper Falls
  - Access below Huntington Park
  - Great Gorge Park
- Post Falls
  - Q'emiln and Falls Parks and below the dam
- Coeur d'Alene Lake
  - Boat ramps and navigation
  - Day-use and ADA access
  - Trail of the Coeur d'Alenes
  - Interpretation
  - Operation and maintenance of recreation facilities

Key Stakeholders

- Cities of Spokane, Post Falls, and Coeur d'Alene
- Spokane, Stevens and Kootenai County Conservation Districts, and Noxious Weed Control Boards
- Washington State Parks, National Park Service, Department of Natural Resources, and Department of Ecology
- Coeur d'Alene Tribe, Idaho Parks and Recreation, Idaho Fish and Game, and Kootenai County Parks and Waterways
- American Whitewater Association, Spokane Canoe and Kayak Club, Centennial Trail, Spokane Mountaineers,Great Gorge Park, and several homeowner associations

Consultants and Studies

The Louis Berger Group

- Three recreation surveys
- Recreation Facility Inventory
- Whitewater Paddling Study
- Aesthetic Flow Study

Fisheries Work Group

Key Issues, CdA Lake

- Protection and enhancement of cutthroat trout and bull trout in both the lake and its tributaries
- ESA species and cutthroat culturally important to the Coeur d'Alene Tribe
- Does operation of the Project affect native fish as they move to/from or live in Coeur d'Alene Lake and tributaries?
- Does operation of the Project enhance habitat for predatory fish such as, pike and bass?

Key Stakeholders, CdA Lake

- Coeur d'Alene Tribe
- U.S. Fish and Wildlife Service
- Idaho Fish and Game
- Idaho Department of Environmental Quality

Consultants and Studies, CdA Lake

- Parametrix, Inc.
  - Movement of cutthroat trout
  - Movement of bull trout
  - Analysis of predation on cutthroat trout
  - Bathymetry

Key Issues
Spokane River

- Protection and enhancement of rainbow trout
- Provide a fish stocking program for recreational fishing
- Does Project operation affect rainbow trout in the Spokane River?

Key Stakeholders
Spokane River

- Idaho Fish and Game
- Washington Department of Fish and Wildlife
- Department of Ecology

Consultants and Studies
Spokane River

- Parametrix, Inc.
  - Study of rainbow trout movement
  - Spawning
  - Ramping
  - Entrainment and passage
- Northwest Hydraulic Consultants/Hardin Davis
  - Studying water balance and instream flow for fish

Key Issues
Lake Spokane

- What fishery best suits setting?
- How can fishery be enhanced?

Key Stakeholders
Lake Spokane

- Lake Spokane Protection Association
- Washington Department of Fish and Wildlife
- Department of Ecology

Terrestrial Resources Work Group

Key Issues

- Coeur d'Alene Lake
  - Water level
  - Wetlands and riparian habitat
  - Erosion
  - Weeds/plants
  - Culturally sensitive plant species
- Avista land management
- Project transmission lines
- Sensitive, threatened and endangered plant species

Key Stakeholders

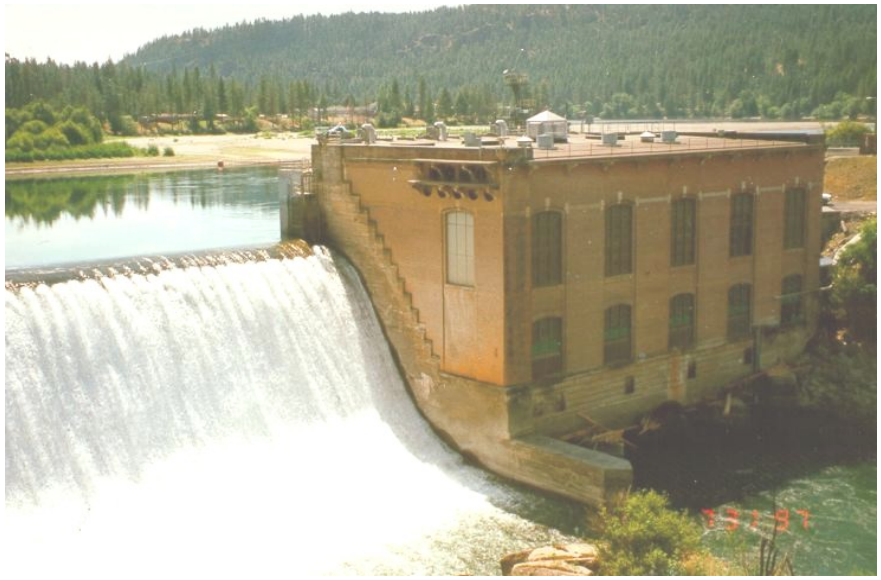
- Cities of Spokane and Post Falls
- Spokane, Stevens and Kootenai County Conservation
- Washington Departments of Ecology and Fish and Wildlife
- Coeur d'Alene Tribe, and Idaho Fish and Game
- Lake Spokane Protection Association

Consultants and Studies

Parametrix, Inc.

- Mapping Assessment
- Erosion Study
- Sensitive, Threatened and Endangered Plant Species Study

Cultural Resources Work Group



National Historic Preservation Act Section 106

- NHPA - broad goals of historic preservation

- Section 106 applies when:
  - there is a federal or federally licensed action, and
  - that action has the potential to affect properties listed in or eligible for listing in the National Historic Register.

Participants

- Confidential
  - FERC
  - Avista
  - Advisory Council (as needed)
  - WA & ID State Historic Preservation Office (SHPOs)
  - Tribal Historic Preservation Office (THPOs) and designated tribal reps
    - Confederated Tribes of the Colville Reservation
    - Coeur d'Alene Tribe of Indians
    - Spokane Tribe of Indians
  - Bureau of Indian Affairs
- Non-Confidential
  - Local governments
    - Spokane City
    - Spokane County
    - Kootenai County
  - Historical societies
    - Post Falls
    - MAC
  - Public
    - Friends of the Falls
    - Individual Citizens

CRWG Activities and Plans

- Consultation - FERC grants Avista's request to conduct §106 Consultation
  - Consultation Plan
- Study Plan
  - Area of Potential Effect (APE)
  - Timeline
- Overview Document (Entrix and Robin Bruce)
  - Gather existing information
  - Confidential and public version
  - Expected to be finalized by April, 2004
- Field Survey/Inventory (Entrix)
  - 220 miles

CRWG Activities and Plans *(cont.)*

- Traditional cultural properties studies (Tribes)
  - Recorded information
  - Interviews
  - Field information
- Evaluate significance of resources and assess impact of Project
- Historic Properties Management Plan (HPMP)
  - Incorporated into a PM&E
- Programmatic Agreement (PA)
  - Issued by FERC during license application review
  - Implements HPMP
  - Signed by consulting parties

FERC process

TMDL

Stakeholder

Beneficial use

Numeric criteria

TDG

EIS

Bathymetry

Riparian

401 Certification

Forebay

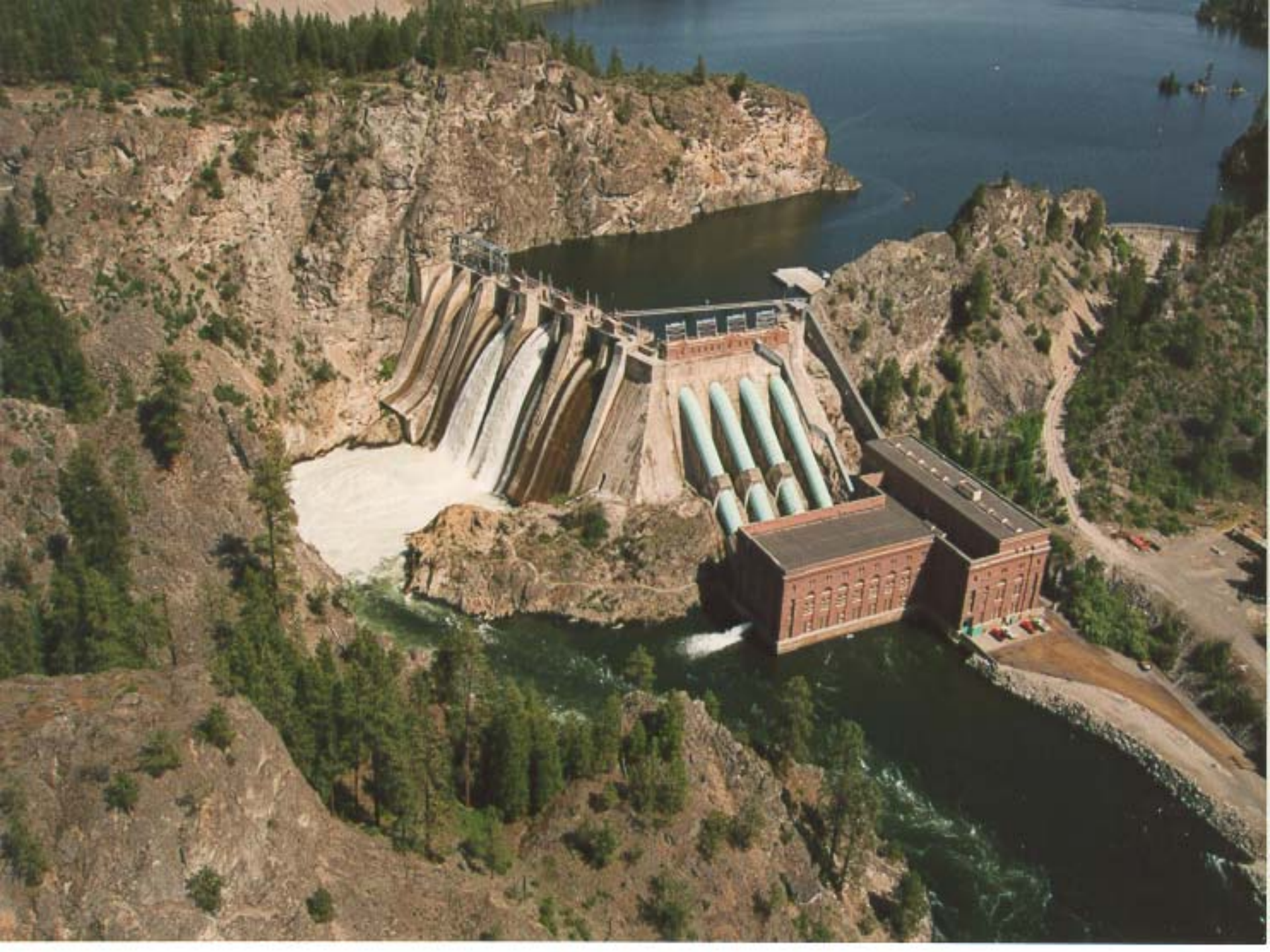
Penstock

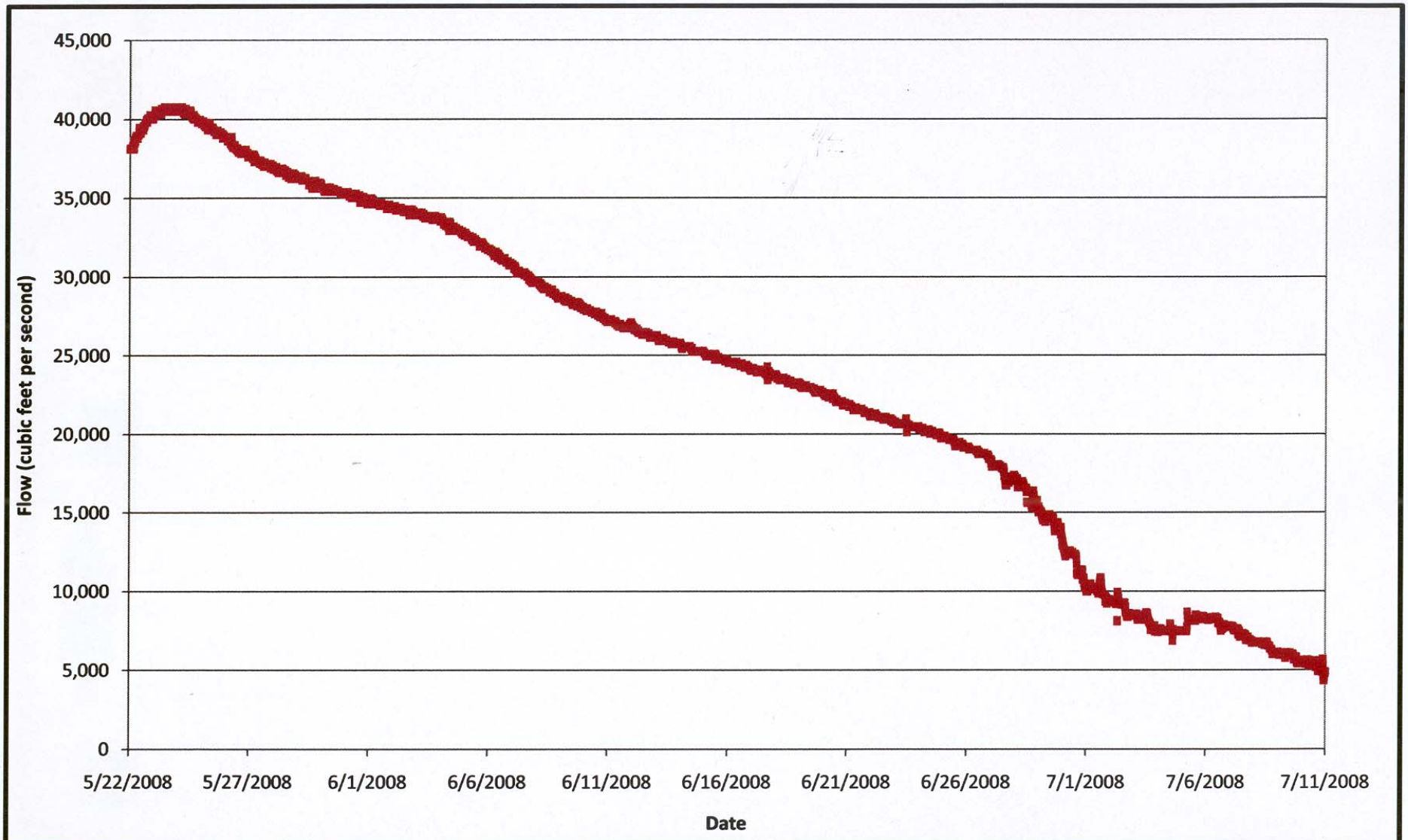
Tailrace

Eutrophication

WA DOE

ID DEQ



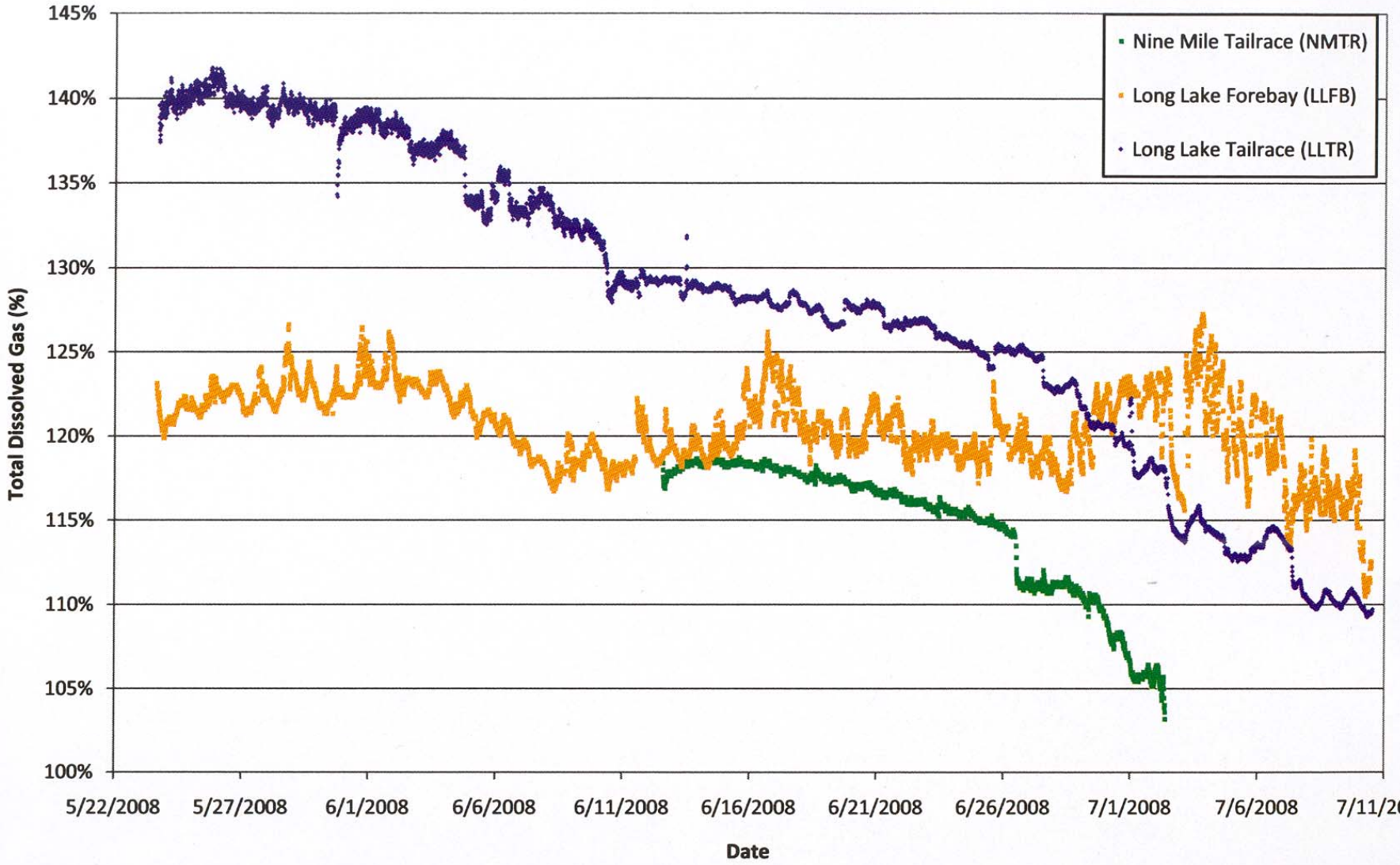


Golder Associates

Title	Spokane River Flow at Spokane (USGS 12422500)	Drawn	DIH
		Checked	BLM
Project Name	Spokane River Hydroelectric Project	Reviewed	BLM
Project No.	073-93081.350		
Client Name	Avista Corporation	FIGURE	3.1-1
Date	April 6, 2009		

V:\PROJECTS_2007 PROJECTS\073-93081_Avista 401 Cert\Task 350 TDG Monitoring\040609blm1 TDG_dh.xlsx

DRAFT



Golder Associates

Title	Continuous Total Dissolved Gas Measurements	Drawn	DIH
		Checked	BLM
Project Name	Spokane River Hydroelectric Project	Reviewed	BLM
Project No.	073-93081.350		
Client Name	Avista Corporation	FIGURE	3.2-1
Date	April 6, 2009		

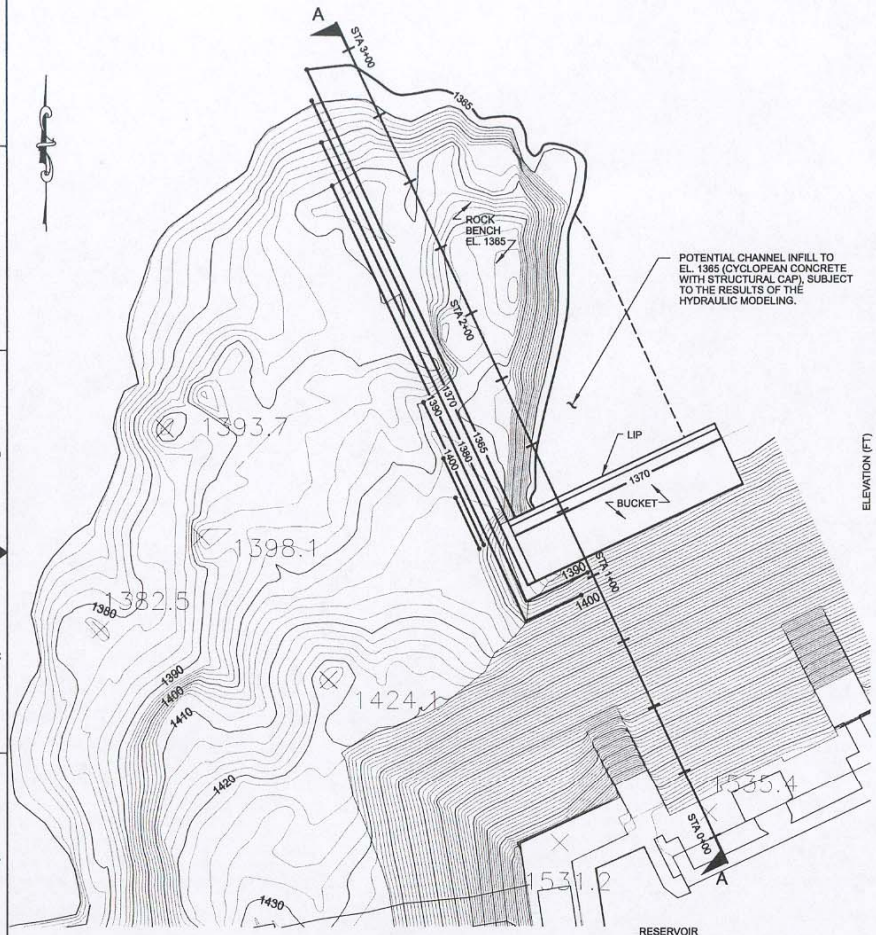
V:\PROJECTS_2007 PROJECTS\073-93081_Avista 401 Cert\Task 350 TDG Monitoring\040609blm1 TDG_dh.xlsx

DRAFT

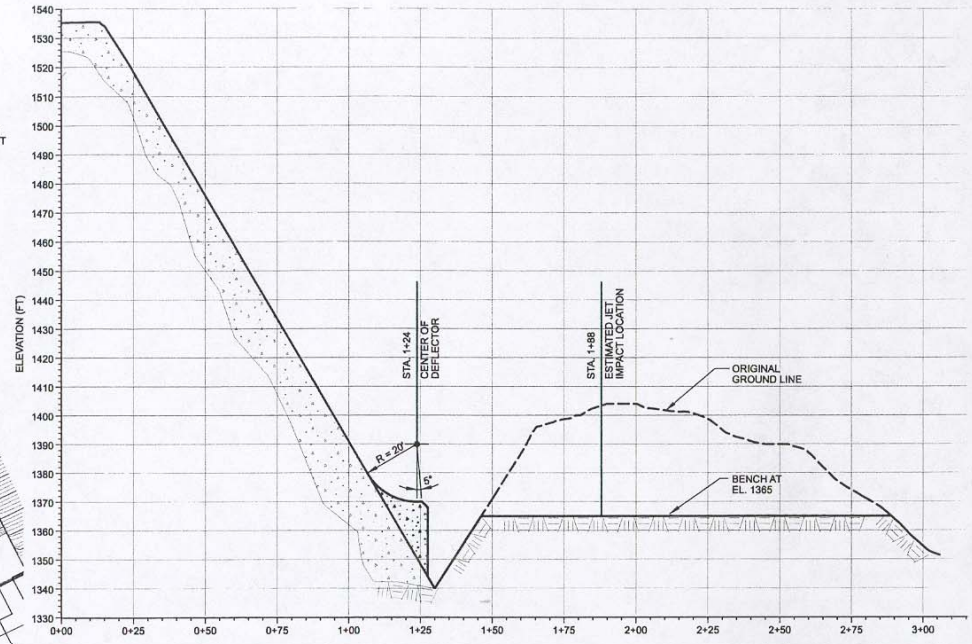
Table 1-1 Summary of TDG Abatement Alternatives

Alternative	Hydraulic Capacity, cfs	Estimated TDG range at hydraulic capacity , %	Comparative Cost, 2005 dollars	Notes
Spill Bay 7-8 Deflectors *	28,000	115 - 125	$7.3 million	
Spill Bay 5-8 Deflectors	29,500	115 - 125	$8.8 million	
Spill Bay 7-8 Deflectors with Training Walls *	28,000	110 - 120	$13.0 million	
Spill Bay 1- 2 Deflectors *	17,600	120 - 130	$4.8 million	
Spill Bay 3-8 Deflectors	29,500	120 - 130	$8.2 million	Cost based on 1991 est., escalated to 2005
New Spill Bay 9	5,000	115 – 125	$7.5 million	
Free Discharge Valves	10,000	105 - 120	$15.6 million	
Cut-Off Dam Spillway *	29,500	110 - 130	$38.4 million	
New Bypass Tunnel – Right Bank	29,500	120 - 124	$47.7 million	
New Bypass Tunnel – Left Bank	29,500	120 - 124	$61.4 million	
Reactivation of Existing Bypass Tunnel	Possibly 20,000	120 – 124	Not estimated	This alternative determined to be technically infeasible
Powerhouse Expansion – Fifth Unit	2,000	120	$16.9 million to $33.1 million net, with energy generation benefits	Powerhouse unit upgrades completed in 1990's. Further upgrades to existing units are not feasible. Present worth of generation benefits estimated at $31.85 million.
New Second Powerhouse	9,500	120	$68 million net, with generation benefits	Cost based on 1990 feasibility study, escalated to 2005 level. Present worth of generation benefits estimated at $114.3 million.

Notes:
1. * Denotes selected alternative, this concept was developed in more detail following initial screening of alternatives. See Section 6 of this report.
2. Cost data is useful for screening comparison of alternatives only. Estimates of possible construction cost will require further development of alternative arrangements, design concept, construction quantities, and unit prices.
3. Lower limits of TDG range reflect assumption of 120% TDG level in forebay.



PLAN VIEW
SCALE: 1"=20'



SECTION A-A
SCALE: 1"=20'

20' 0 40'
SCALE: 1"=20'

AVISTA Utilities
AVISTA CORPORATION
SPOKANE, WASHINGTON

EES Consulting
570 KIRKLAND WAY, SUITE 200 KIRKLAND, WA 98033
PH. 425.889.2700

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1/2" 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE

DRAWN BY: AVP
DESIGNED BY: SEM
CHECKED BY: PTC
APPROVED BY: SEM
DATE: 04.19.05

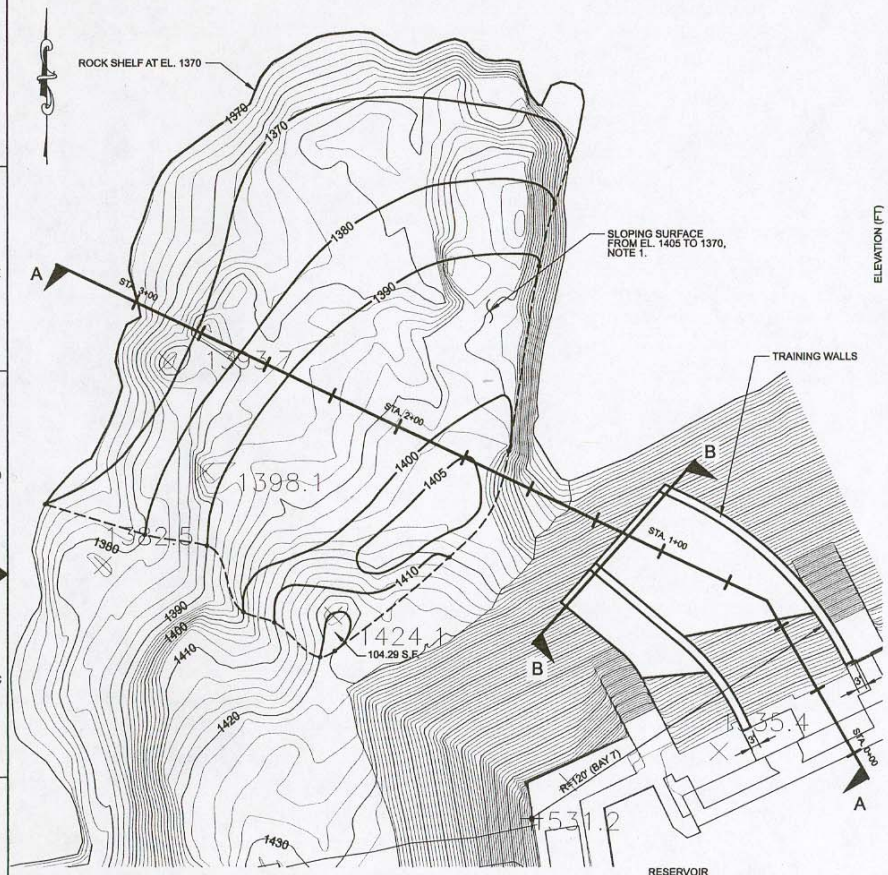
LONG LAKE TDG STUDY

SPILL BAY 7-8 DEFLECTORS
CONCEPT ARRANGEMENT

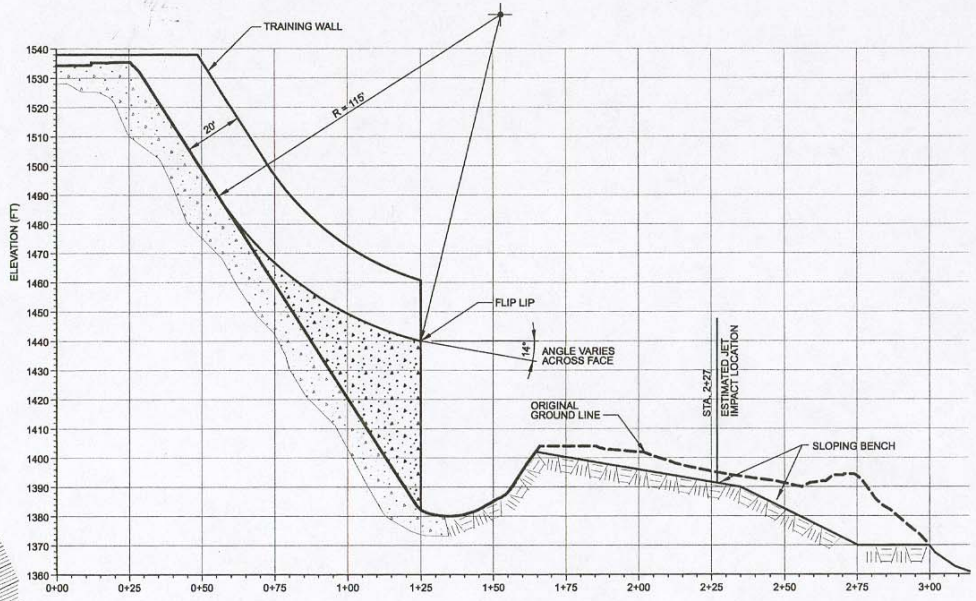
SCALE: 1" = 20'
PROJECT NO. 19890

FIGURE 6-1

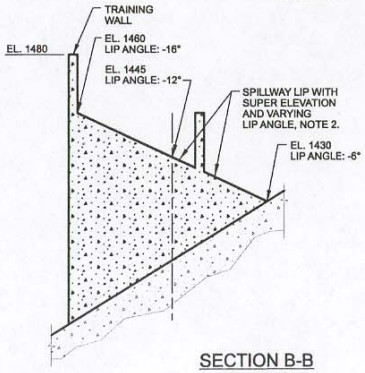
Long Lake Fig 6-1.dgn



PLAN VIEW
SCALE: 1"=20'



SECTION A-A
SCALE: 1"=20'



SECTION B-B
SCALE: 1"=20'

NOTES:

1. ENERGY DISSIPATING STRUCTURES ON FACE OF SLOPING BENCH ARE NOT SHOWN. ENERGY DISSIPATING STRUCTURES MAY BE REQUIRED TO DISTRIBUTE AND SLOW DOWN FLOWS ON BENCH, AS DETERMINED BY HYDRAULIC MODEL STUDIES.
2. SPILLWAY DISCHARGE LIP ARRANGEMENT TO BE SELECTED BASED ON HYDRAULIC MODEL STUDIES.

20' 0 40'
SCALE: 1"=20'

AVISTA Utilities
AVISTA CORPORATION
SPOKANE, WASHINGTON

EES Consulting
570 KIRKLAND WAY, SUITE 200 KIRKLAND, WA 98033
PH. 425.889.2700

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1/2" 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE:

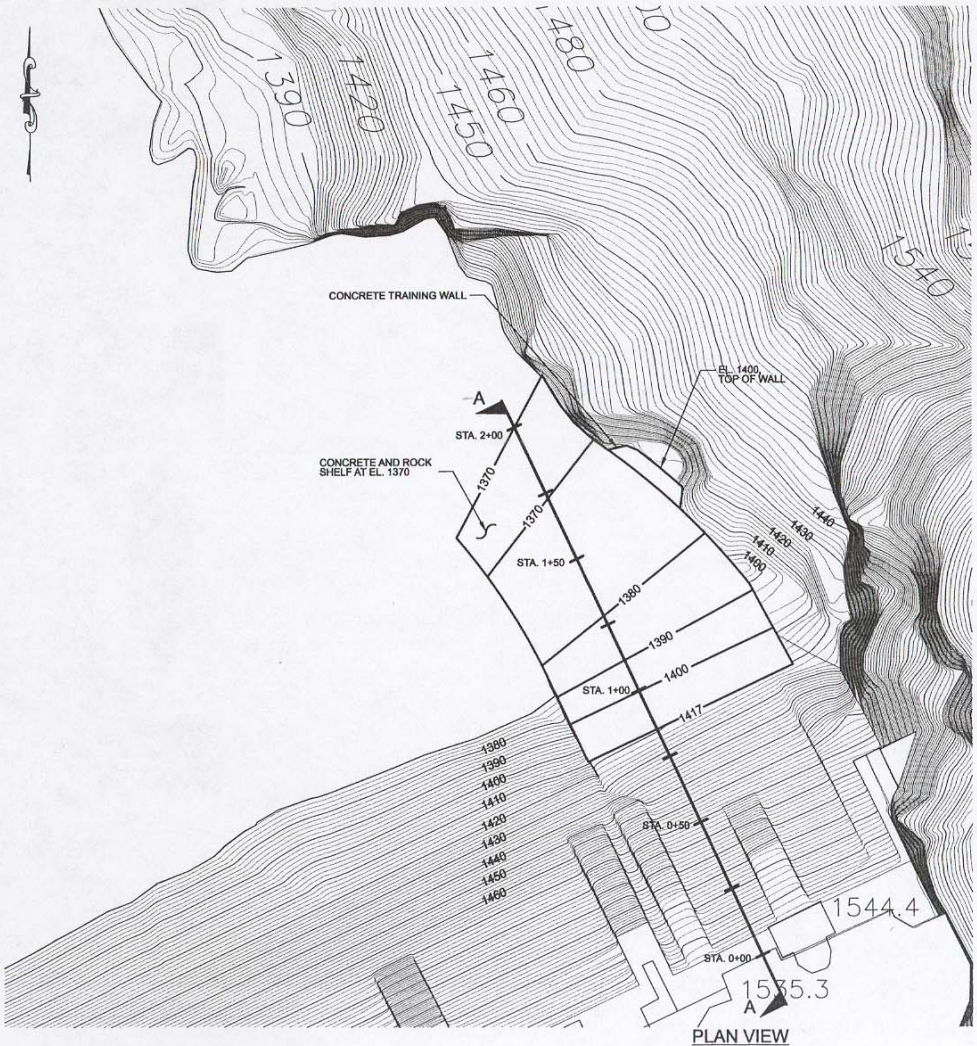
DRAWN BY: AAP
DESIGNED BY: SDM
CHECKED BY: PTE
APPROVED BY: SDM
DATE: 04.16.05

LONG LAKE TDG STUDY

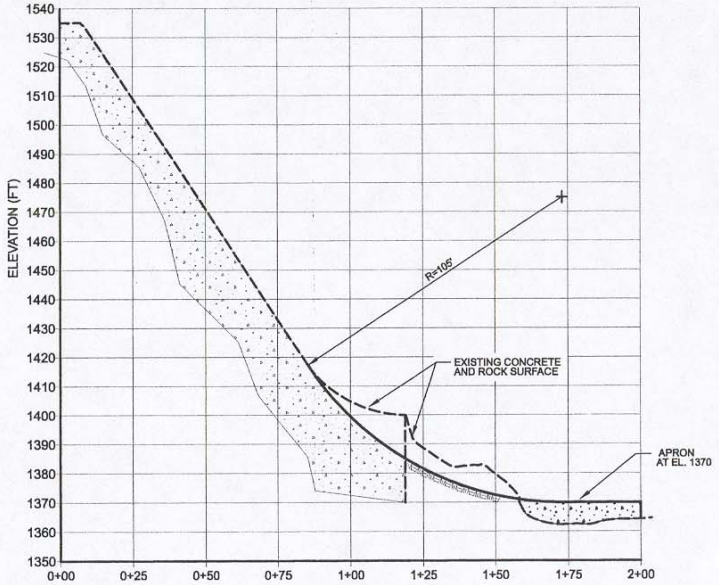
SPILL BAY 7-8 DEFLECTORS WITH TRAINING WALLS CONCEPT ARRANGEMENT

SCALE: 1" = 20'
PROJECT NO. xxxxxx

FIGURE 6-2



PLAN VIEW
SCALE: 1"=20'



SECTION A-A
SCALE: 1"=20'

20' 0 40'
SCALE: 1"=20'

AVISTA Utilities
AVISTA CORPORATION
SPOKANE, WASHINGTON

EES Consulting
570 KIRKLAND WAY, SUITE 200 KIRKLAND, WA 98033
PH 425.889.2700

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1/2" 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE

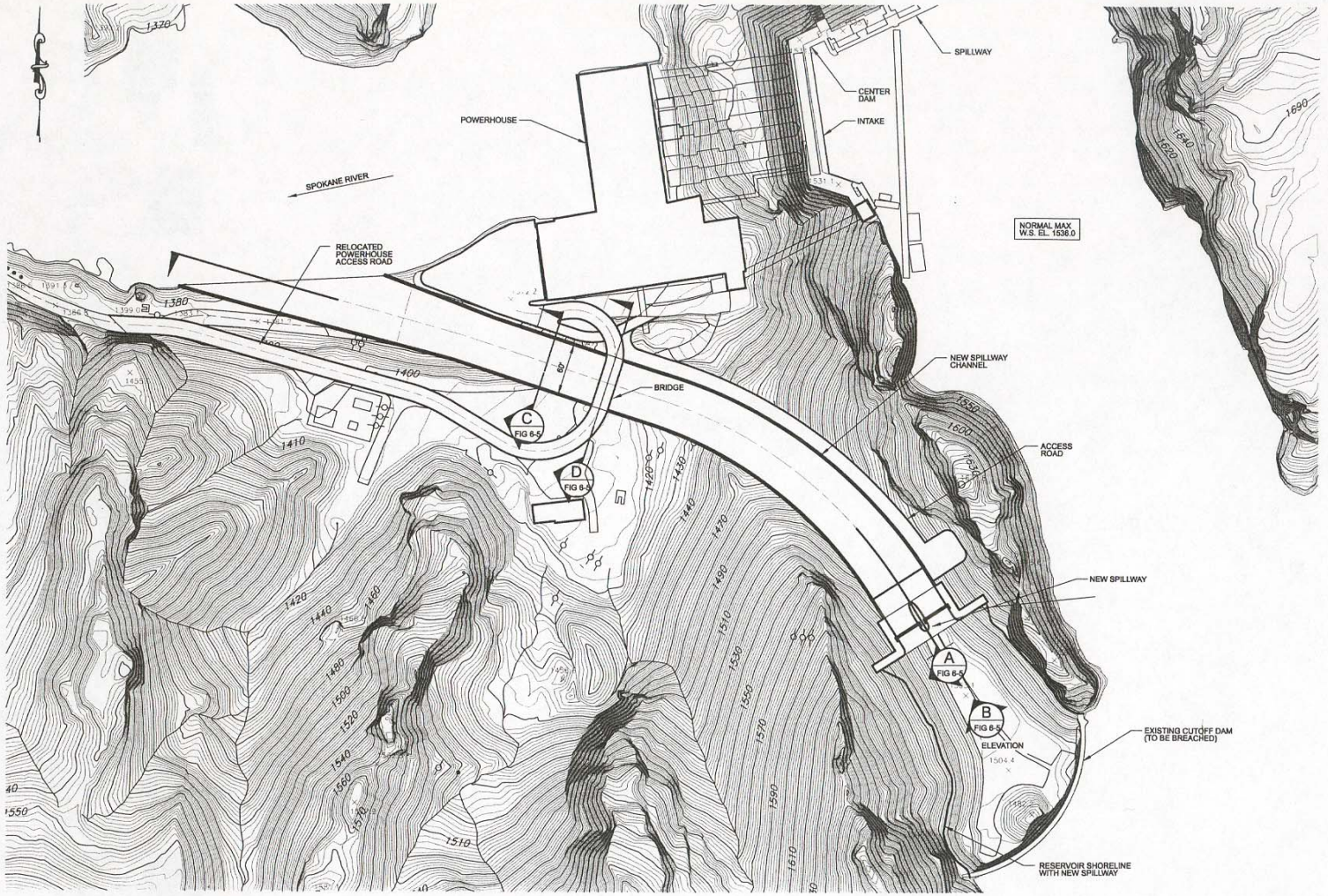
DRAWN BY: AP
DESIGNED BY: SEN
CHECKED BY: PTC
APPROVED BY: SEN
DATE: 08.20.25

LONG LAKE TDG STUDY

SPILL BAY 1-2 DEFLECTORS
CONCEPT ARRANGEMENT

SCALE: 1" = 20'
PROJECT NO. 19800

FIGURE 6-3



PLAN VIEW
SCALE: 1"=60'

AVISTA Utilities
AVISTA CORPORATION
SPOKANE, WASHINGTON

EES Consulting
570 KIRKLAND WAY, SUITE 200 KIRKLAND, WA 98033
PH. 425.889.2700

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1/2" 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE

DRAWN BY: AP
DESIGNED BY: SEM
CHECKED BY: PIC
APPROVED BY: SEM
DATE: 08.20.05

LONG LAKE TDG STUDY

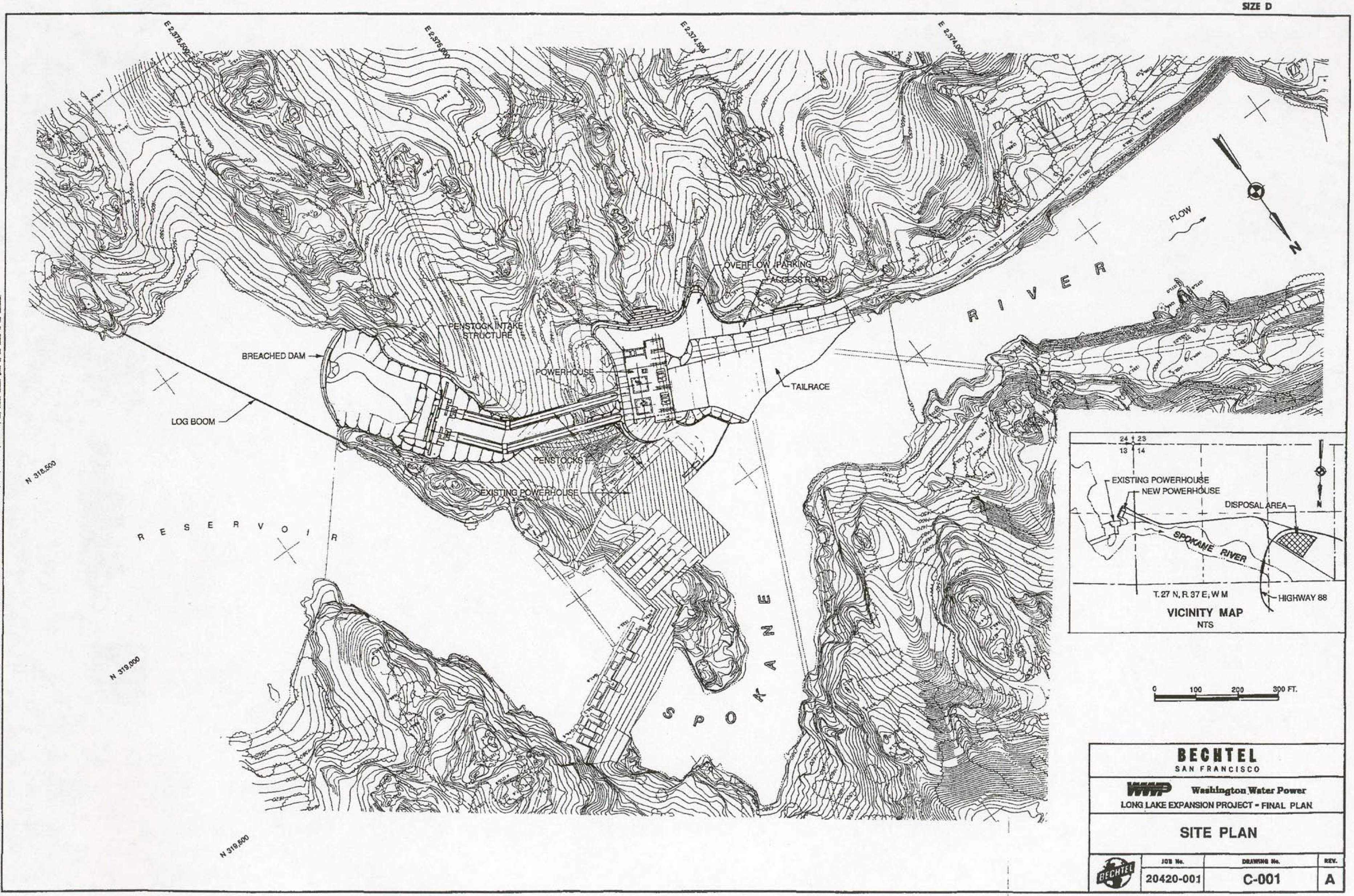
CUT-OFF DAM SPILLWAY
CONCEPT ARRANGEMENT
PLAN

SCALE: 1" = 60'
PROJECT NO. 19990

FIGURE 6-4

Long Lake Fig 6-4

SIZE D



E 2,375,500
E 2,375,000
E 2,374,500
E 2,374,000
OVERFLOW PARKING
ACCESS ROAD
FLOW
N
RIVER
PENSTOCK INTAKE STRUCTURE
BREACHED DAM
POWERHOUSE
TAILRACE
LOG BOOM
PENSTOCKS
EXISTING POWERHOUSE
N 318,500
RESERVOIR
SPOKANE
N 319,000
N 319,500
24 23
13 14
EXISTING POWERHOUSE
NEW POWERHOUSE
DISPOSAL AREA
SPOKANE RIVER
T. 27 N, R. 37 E, W M
HIGHWAY 88
VICINITY MAP
NTS
0 100 200 300 FT.
BECHTEL
SAN FRANCISCO
WWP Washington Water Power
LONG LAKE EXPANSION PROJECT - FINAL PLAN
SITE PLAN
JOB No. 20420-001
DRAWING No. C-001
REV. A

- RFP No. R-36156-1
- Long Lake HED
- Total Dissolved Gas Abatement
- Phase II Feasibility Study